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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,918	12/03/2003	Philip J. Ellerbrock	038190/270515	4718

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ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER	
DANG, KHANH	

ART UNIT	PAPER NUMBER
2111	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/726,918	ELLERBROCK ET AL.	
	Examiner	Art Unit	
	Khanh Dang	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

The status of parent application no. 09/735,146 must be updated, since parent application no. 09/735,146 has already been patented and assigned a patent number. The Patent No. is 6,708,239.

Claim Rejections - 35 USC § 112

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, line 3, after "stop bit set," the word – to – should be added. In line 5, "the address bit" lacks antecedent basis.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Karolys (6,013,108).

As broadly drafted, these claims do not define any structute or step that differs from Karolys.

With regard to claim 1, Karolys discloses a method for controlling a plurality of data channels (constituted by a plurality of sensors or transducers 10, column 1, lines 50-61; column 3, lines 51-60; column 5, lines 22-30) connected via a common data bus to a bus controller (BCM 28 connected to a host 14), the method comprising: transmitting a message including a command from the bus controller to the plurality of data channels (a network device interface TBIM 26 connected between the common digital bus 24 an associated data channel constituted by a plurality of sensors or transducers 10; wherein the network device interface TBIM 26 transmits commands to and receives data from the associated data channel; column 1, lines 50-61; column 3, lines 51-60; column 5, lines 22-30), wherein the message comprises a plurality of bits (it is clear that a digital signal on digital bus 24 comprises a plurality of bits); and performing a function defined by the command at each of the plurality of the data channels (in Karolys, RS-485 communication standard is used for bus 24; the RS-485 is UART based protocol; an UART message comprises "start" bit, five to eight data bits, least-significant-bit first, an optional "parity" bit, and then a "stop" bit; see definition of UART, cite below), wherein performing the function comprises commencing performance of the function at each data channel at the same predetermined time relative to a predetermined transition in the message such that the plurality of data channels can perform the function simultaneously in a time-deterministic manner (in Karolys, UART message comprises five to eight data bits after the "start" bit to

commence performance of the function of each data channel data channel constituted by each sensor or transducer 10; Karolys further discloses the use of clock 206 at each TBIM, column 5, line 50 to column 6, line 6, for synchronizing communications with the bus controller such that the plurality of data channels can perform the function simultaneously at the same predetermined time relative to a predetermined transition between 0 and 1 of the 9th parity bit of the UART data frame; see EDN Access, 485 RS-Communication, and Phillips' AN10250, cited below).

With regard to claim 2, it is clear that in Karolys, transmitting the message comprises transmitting the message at a predetermined bit rate according to UART based RS485 protocol independent of an accompanying synchronous clock signals (synchronization is performed by only clock 206 of the BCM 28). See also "RS-485", page 1, cited below.

With regard to claim 3, commencing performance of the function comprises commencing performance of the function at each data channel coincident with a predetermined transition defined in the message (in Karolys, RS-485 communication standard is used for bus 24; the RS-485 is UART based protocol; an UART message comprises "start" bit, five to eight data bits, least-significant-bit first, an optional "parity" bit, and then a "stop" bit; see definition of UART, cite below; and the transition of the message is defined by a predetermined transition between 0 and 1 of the 9th parity bit of the UART data frame; see EDN Access, 485 RS-Communication, and Philips' AN10250, cited below).

With regard to claim 4, transmitting the message comprises transmitting a message including a command from the bus controller to the plurality of data channels (Karolys discloses a communication system, shown generally at Fig. 2, adapted to interconnect a bus controller BCM 28 connected to a host 14 with a plurality of data channels constituted by a plurality of sensors or transducers 10, column 1, lines 50-61; column 3, lines 51-60; column 5, lines 22-30, via a common digital bus 24, the communication system comprising: a bus controller BCM 28 connected to a host 14 connected to the common digital bus 24), wherein the message comprises a plurality of bits having a value defined by a transition between first and second states (a predetermined transition between 0 and 1 of the 9th parity bit of the UART data frame; see EDN Access, 485 RS-Communication, and Philips' AN10250, cited below), wherein the message comprises a sync portion, a message body and a parity bit, and wherein commencing performance of the function comprises commencing performance of the function at each data channel coincident with the transition that defines the value of the parity bit (a predetermined transition between 0 and 1 of the 9th parity bit of the UART data frame, the 9TH bit is used to determine whether it is an address or actual data to be sent).

With regard to claim 6, Karolys discloses a system for controlling a plurality of data channels connected via a common data bus to a bus controller, the system comprising: a plurality of network device interfaces (TBIM 26) adapted to interconnect respective data channels with the bus controller via a common digital bus (Karolys discloses a communication system (shown generally at Fig. 2) adapted to interconnect

a bus controller (BCM 28 connected to a host 14) with an associated data channel (constituted by a sensor or transducer 10, column 1, lines 50-61; column 3, lines 51-60; column 5, lines 22-30) via a common digital bus 24), wherein each network device comprises: a receiver for receiving a message from the bus controller via the common digital bus (the TBIM is Transducer Bus Interface Modules, and it is clear that a transducer, by definition, includes a receiver and a transmitter), wherein the message is comprised of a plurality of bits (it is clear that a digital signal on digital bus 24 comprises a plurality of bits); and a device interface for providing commands to the associated data channel in response to a message received by said receiver and for receiving data from the associated data channel (in Karolys, RS-485 communication standard is used for bus 24; the RS-485 is UART based protocol; an UART message comprises "start" bit, five to eight data bits, least-significant-bit first, an optional "parity" bit, and then a "stop" bit; see definition of UART, cite below), wherein when said device interface of each network device interface receives a selected command from the bus controller, each device interface provides the command to the associated data channel at the same predetermined time relative to a predetermined transition in the message such that the plurality of data channels can perform the function simultaneously in a time-deterministic manner (in Karolys, UART message comprises five to eight data bits after the "start" bit to commence performance of the function of each data channel data channel constituted by each sensor or transducer 10; Karolys further discloses the use of clock 206 at each TBIM, column 5, line 50 to column 6, line 6, for synchronizing communications with the bus controller such that the plurality of data channels can

perform the function simultaneously at the same predetermined time relative to a predetermined transition between 0 and 1 of the 9th parity bit of the UART data frame; see EDN Access, 485 RS-Communication, and Philips' AN10250, cited below).

With regard to claim 7, the TBIM is Transducer Bus Interface Modules, and it is clear that a transducer, by definition, includes a receiver and a transmitter.

With regard to claims 8-12, see discussion above, since these claims are directed to the same subject matter that has already been discussed.

With regard to claims 13-20, see discussion above, since these claims are directed to the same subject matter that has already been discussed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

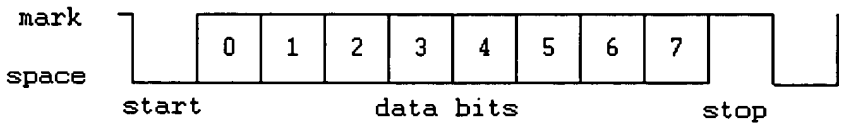
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karolys in view of well-known prior art.

As discussed above, Karolys discloses the claimed invention including the use of RS-485 communication protocol.

Karolys does not disclose the use of RS-232 communication protocol. However, RS-232 communication protocol is well-known and it is well-known that RS 232 packet

comprises a start bit, a command field, an address filed having an unused last bit set to 0. In RS232, the unused last bit is the parity bit (before stop bit) that is set to 0 to indicate an address instead of data (parity is set to 1), a stop bit is **set to 1** in RS232. The start bit is always set to 0 or "space" and the stop bit is always set to 1 or "mark" (see RS232 definition by Wikipedia, cited below):



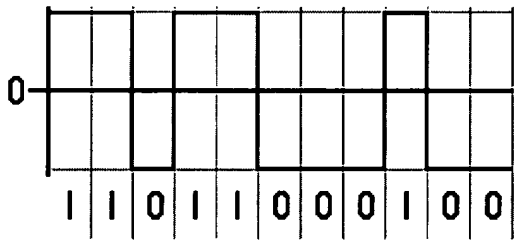
. Further, in RS-232, commencing performance of the function comprises commencing performance of the function at each data channel coincident with the transition from **the address bit** to the stop bit (if the address is recognized by the slave then a communication between the controller and the slave can be started).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ RS-232 communication protocol in Karolys, since both RS-485 and RS-232 are old and well-known as serial communication protocols, and selecting one such as RS-232 protocol only involves ordinary skill in the art.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karolys in view of well-known prior art.

With regard to claim 21, in Karolys, as discussed above, discloses the claimed invention including the use of RS-485 communication standard is used for bus 24; the RS-485 is UART based protocol; an UART message comprises "start" bit, five to eight

data bits, least-significant-bit first, an optional "parity" bit, and then a "stop" bit; see definition of UART, cite below). In addition, UART message comprises five to eight data bits after the "start" bit to commence performance of the function of each data channel data channel constituted by each sensor or transducer 10. Karolys further discloses the use of clock 206 at each TBIM, column 5, line 50 to column 6, line 6, for synchronizing communications with the bus controller such that the plurality of data channels can perform the function simultaneously at the same predetermined time relative to a predetermined transition between 0 and 1 of the 9th parity bit of the UART data frame; see EDN Access, 485 RS-Communication, and Philips' AN10250, cited below. Karolys does not particular disclose that the RS-485 is used with NZR encoding. However, NZR encoding is well-known. A non-return-to-zero (NRZ) line code is a binary code in which "1s" are represented by one significant condition and "0s" are represented by another:



Further, it is well-known that RS-485 communication protocol is used with NZR encoding as evidenced by "RS-485" (page 1) cited below.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ NZR encoding for the RS-485 communication protocol for providing a simple encoding solution that is required by the RS-485 protocol.

US Patent Nos. 5,754,780 to Asakawa et al. and 4,124,778 to Amass are cited as relevant art.

IEEE 1451, Encoding Dictionary, UART definition, RS-232 definition, RS-485, Phippips' AN10250, 485 RS-Communication, and EDN Access are also cited as relevant art.

Any inquiry concerning this communication should be directed to Khanh Dang at telephone number 571-272-3626.

Khanh Dang